

# PATENT SPECIFICATION

NO DRAWINGS

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## COMPLETE SPECIFICATION

### Improvements in the Treatment of Common Salt

5 We, IMPERIAL CHEMICAL INDUSTRIES LIMITED, of Imperial Chemical House, Millbank, London, S.W.1, a British Company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention consists in improvements in the treatment of common salt particularly for the purpose of consolidating salt in blocks or other masses.

15 For many years two block forms of domestic salt have been marketed in addition to the powder form in packets:

- (a) "Cut lumps" in a paper wrap
- (b) "Cubes" in packets.

20 In the existing process for producing the block forms it is necessary to start with open pan salt which has a flaky crystalline form, but which is very expensive to make. Wet salt from the open evaporating pan is put into wooden moulds, and a block of salt is moulded or cast and then baked to dryness. The next stage is to cut the large blocks with an array of saws so that either rectangular lumps or "cubes" are produced. (The so called cubes are generally rectangular blocks about 1" × 1" × 1/3" in size).

30 The product so made is suitable for kitchen use in that although the lumps and cubes are strong enough to hold together, they dissolve readily and can be broken by hand if a pinch of powdered salt is needed. The block products have the advantage over a packet of powdered salt in that such, i.e. powdered salt, can readily harden and cement itself into the packet unless additives such as magnesia are used.

40 As mentioned above the drawback of the existing process is that an expensive form of salt (open pan salt) is needed. This form of salt consists of flaky crystals. If ordinary cheap salt (vacuum or crushed rock salt) which is a

compact cubic crystalline form is used instead, difficulties at once arise. If the normal procedure of wetting, moulding and drying is applied the resulting mass is too fragile to withstand sawing. If, on the other hand, individual cubes are moulded from wet salt the final product is too weak and the small blocks crumble too readily.

The use of known compression techniques does not make it possible to produce a block or cube which combines the desired properties. The minimum pressure needed to give adequate coherence produces a block or cube which is not readily dissolved nor can it be easily crushed between finger and thumb.

60 Accordingly this invention provides a block or a mass of compact cubic crystalline salt containing a water soluble or water dispersable binding agent.

By the present invention, a product having the desired properties can be made starting with the cheaper forms of salt equally as well as with the more expensive forms; and the present invention consists in a process for producing a block or a mass of cubic crystalline salt by moulding, tableting, extruding or otherwise shaping wet salt and subsequently drying it, when the wet salt includes a water soluble or water dispersable binding agent.

75 The binding agent should be present to the extent of less than 5% by weight of the salt and preferably it should be present to the extent approximately of 0.1% by weight.

When the resulting salt mass is to be used for domestic purposes the binding agent chosen will be of a non-toxic character comprising a gelatine, a glue or a gum.

85 In a preferred example of the invention the desired properties can be obtained from ordinary salt if a small amount of gelatine is added to the water which is to be used to moisten the salt.

Preferably a 2% solution of gelatine in water is mixed as to 1 part of the solution

[Price 3s. 6d.]

with 20 parts of vacuum salt. The wet salt which results does not behave like ordinary wet salt but it forms a stiff dough which can be readily moulded to the shape desired and which on drying gives a product of the desired hardness, cohesion and dissolving properties. The dried salt contains 0.1% of gelatine.

In a further example an 8% solution of gum acacia in water is mixed as to 1 part of the solution with 20 parts of vacuum salt. The wet salt which results possesses similar properties to those when gelatine is used as the binding agent and in the dry condition the salt contains 0.4% of gum acacia.

Salt so prepared, mixed and dried may be produced in any shape as for example in the normal comparatively large rectangular blocks and these can be readily sawn or otherwise cut into smaller cubes of any desired size. Shaping can be carried out by any known technique such as moulding, tableting or extruding followed by drying.

It is not essential that the smaller cubes above referred to should be cut from larger blocks as they may be moulded in the form of the smaller cubes initially if preferred.

The invention also includes blocks or other masses of compact cubic crystalline salt when manufactured by the process hereinbefore described and containing a water-soluble or water dispersable binding agent as part of the material thereof.

#### WHAT WE CLAIM IS:—

1. A block or a mass of compact cubic crystalline salt containing a water soluble or water dispersable binding agent.

2. A block or a mass of compact cubic crystalline salt according to claim 1 in which the binding agent is of a non-toxic character comprising a gelatine, a glue or a gum.

3. A block or a mass according to claim 1 in which the binding agent is present or is added to the extent of not more than 5% by weight of the salt.

4. A block or a mass according to claim 1 in which the binding agent is present or is added to the extent of not more than 0.1% by weight of the salt.

5. A block or a mass according to claim 1 in which the binding agent is a 2% solution of gelatine in water mixed as to 1 part of the solution with 20 parts of vacuum salt.

6. A block or a mass according to claim 1 in which the binding agent is an 8% solution of gum acacia in water mixed as to 1 part of the solution with 20 parts of vacuum salt.

7. A process for producing a block or a mass of compact cubic crystalline salt by moulding, tableting, extruding or otherwise shaping wet salt and subsequently drying it, wherein the wet salt includes a water soluble or water dispersable binding agent.

WALTER SCOTT,  
Agent for the Applicants.

#### PROVISIONAL SPECIFICATION

##### Improvements in the Treatment of Common Salt

We, IMPERIAL CHEMICAL INDUSTRIES LIMITED, of Imperial Chemical House, Millbank, London, S.W.1, a British Company, do hereby declare this invention to be described in the following statement:—

This invention consists in improvements in the treatment of common salt particularly for the purpose of consolidating salt in blocks or other masses.

For many years two block forms of domestic salt have been marketed in addition to the powder form in packets:

(a) "Cut lumps" in a paper wrap.

(b) "Cubes" in packets.

In the existing process for producing the block forms it is necessary to start with open pan salt which has a flaky crystalline form, but which is very expensive to make. Wet salt from the open evaporating pan is put into wooden moulds, and a block of salt is moulded or cast and then baked to dryness. The next stage is to cut the large blocks with an array of saws so that either rectangular lumps or "cubes" are produced. (The cubes are actually rectangular blocks about 1" x 1" x 1/3" in size).

The product so made is suitable for kitchen use in that although the lumps and cubes are

strong enough to hold together, they dissolve readily and can be broken by hand if a pinch of powdered salt is needed. The block products have the advantage over a packet of powdered salt in that such, i.e. powdered, salt can readily harden and cement itself into the packet unless additives such as magnesia are used.

As mentioned above the drawback of the existing process is that an expensive form of salt (open pan block salt) is needed. This form of salt consists of flaky crystals. If ordinary cheap salt (vacuum or crushed rock salt) which is a compact cubic crystalline form is used instead, difficulties at once arise. If the normal procedure of wetting, moulding and drying is applied the resulting mass is too fragile to withstand sawing. If, on the other hand, individual cubes are moulded from wet salt the final product is too weak and the small blocks crumble too readily.

The use of known compression techniques does not make it possible to produce a block or cube which combines the desired properties. The minimum pressure needed to give adequate coherence produces a block or cube which is not readily dissolved nor can it be easily crushed between finger and thumb.

By the present invention, however, a product having the desired properties can be made starting with the cheaper forms of salt equally as well as with the more expensive forms; and the present invention consists in a process for consolidating particles of common salt into larger masses which includes the step of admixing water, salt and an effective amount of a water-soluble binding agent, and thereafter submitting the admixture to a shaping and drying process.

The binding agent should be present to the extent of less than 5% by weight of the salt and preferably it should be present to the extent approximately of 0.1% by weight.

When the resulting salt mass is to be used for domestic purposes the binding agent chosen will be of a non-toxic character and is conveniently selected from the group consisting of gelatine, glue and gums.

In a preferred example of the invention the desired properties can be obtained from ordinary salt if a small amount of gelatine is added to the water which is to be used to moisten the salt.

Preferably a 2% solution of gelatine in water is mixed as to 1 part of the solution

with 20 parts of vacuum salt. The wet salt which results does not behave like ordinary wet salt but it forms a stiff dough which can be readily moulded to the shape desired and which on drying gives a product of the desired hardness, cohesion and dissolving properties. At the same time there is only 0.1% of gelatine in the final product.

Salt so prepared, mixed and dried may be produced in any shape as for example in the normal comparatively large rectangular blocks and these can be readily sawn or otherwise cut into smaller cubes of any desired size. Shaping can be carried out by any known technique such as moulding or tableting followed by drying.

It is not essential that the smaller cubes above referred to should be cut from larger blocks as they may be moulded in the form of the smaller cubes initially if preferred.

The invention also includes blocks or other masses of salt when manufactured by the process hereinbefore described and containing a water-soluble binding agent as part of the material thereof.

WALTER SCOTT,  
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